

724 2/28-29 (2011)

es 5

| | | | | | | | |
|-----------|-----|------------|------------|-----------|------------|-------------|----|
| PGTCD | 551 | ----- | ----- | ----- | ----- | 60 | |
| BOVCSTA | 551 | ----- | ----- | ----- | ----- | 60 | |
| MUSCULTNS | 551 | ATCCTATGTC | TTCAGATGTC | GCATGTGTC | AGCATGTGTC | TGTCAGATGTC | 60 |

Fig 4 (cont) 4-2

| | | | | |
|------------|------|-----------------|-----------------|------|
| | | | Exon 3 \| Exon 4 | |
| POTCD | 301 | ----- | ----- | 650 |
| BOVGSTA | 301 | ----- | ----- | 650 |
| MUSCULYTHS | 301 | CAAGTCAGAA | ACAGCTCTTC | 650 |
| | | | | |
| | | Exon 4 | | |
| POTCD | 551 | TNATCATCT | CAAGCAGAA | 700 |
| BOVGSTA | 551 | TNATCATCT | CAAGCAGAA | 700 |
| MUSCULYTHS | 551 | TNATCATCT | CAAGCAGAA | 700 |
| | | | | |
| | | Exon 4 \| Exon 5 | | |
| POTCD | 701 | GTAAATGCTTC | TCTTTTGGCA | 750 |
| BOVGSTA | 701 | GTAAATGCTTC | TCTTTTGGCA | 750 |
| MUSCULYTHS | 701 | GTAAATGCTTC | TCTTTTGGCA | 750 |
| | | | | |
| | | Exon 5 \| Exon 6 | | |
| POTCD | 751 | CTGCATATAC | CACTCAAAA | 800 |
| BOVGSTA | 751 | CTGCATATAC | CACTCAAAA | 800 |
| MUSCULYTHS | 751 | CTGCATATAC | CACTCAAAA | 800 |
| | | | | |
| | | Exon 6 \| Exon 7 | | |
| POTCD | 801 | CTCTCTCTG | TTTCTGAGC | 850 |
| BOVGSTA | 801 | CTCTCTCTG | TTTCTGAGC | 850 |
| MUSCULYTHS | 801 | CTCTCTCTG | TTTCTGAGC | 850 |
| | | | | |
| | | | | |
| POTCD | 851 | CAACAGAGAC | ACCTATAGC | 900 |
| BOVGSTA | 851 | CAACAGAGAC | ACCTATAGC | 900 |
| MUSCULYTHS | 851 | CAACAGAGAC | ACCTATAGC | 900 |
| | | | | |
| | | Exon 7 \| Exon 8 | | |
| POTCD | 901 | CAGAGCAGAC | CTTCTCTAG | 950 |
| BOVGSTA | 901 | ---AAGCAAC | CTTCTCTAG | 950 |
| MUSCULYTHS | 901 | ---AAGCAAC | CTTCTCTAG | 950 |
| | | | | |
| | | | | |
| POTCD | 951 | ACCTCTGAC | CAATACCA | 1000 |
| BOVGSTA | 951 | ACCTCTGAC | CAATACCA | 1000 |
| MUSCULYTHS | 951 | ACCTCTGAC | CAATACCA | 1000 |
| | | | | |
| | | | | |
| POTCD | 1001 | TACACACAG | CCCTCTTACA | 1050 |
| BOVGSTA | 1001 | TACACACAG | CCCTCTTACA | 1050 |
| MUSCULYTHS | 1001 | TACACACAG | CCCTCTTACA | 1050 |
| | | | | |
| | | Exon 8 \| Exon 9 | | |
| POTCD | 1051 | CCCTCTGAC | CTTCTCTAG | 1100 |
| BOVGSTA | 1051 | CCCTCTGAC | CTTCTCTAG | 1100 |
| MUSCULYTHS | 1051 | CCCTCTGAC | CTTCTCTAG | 1100 |
| | | | | |
| | | | | |
| POTCD | 1101 | AGTTCTTAA | ATCTCTTAA | 1150 |
| BOVGSTA | 1101 | AGTTCTTAA | ATCTCTTAA | 1150 |
| MUSCULYTHS | 1101 | AGTTCTTAA | ATCTCTTAA | 1150 |
| | | | | |
| | | | | |
| POTCD | 1151 | TTTACATCA | TCTCTGATCA | 1200 |
| BOVGSTA | 1151 | TTTACATCA | TCTCTGATCA | 1200 |
| MUSCULYTHS | 1151 | TTTACATCA | TCTCTGATCA | 1200 |
| | | | | |
| | | | | |
| POTCD | 1201 | TCTCTGATCA | TCTCTGATCA | 1250 |
| BOVGSTA | 1201 | TCTCTGATCA | TCTCTGATCA | 1250 |
| MUSCULYTHS | 1201 | TCTCTGATCA | TCTCTGATCA | 1250 |

Fig 4(cont) 4-3

| | | | | | | | |
|-----------|------|------------|------------|------------|-------------|-------------|------|
| POTCD | 1151 | AACACATCAG | CATCATCCGC | ATGAAGACCA | TCCGGGAGCA | CATTCTCGCC | 1300 |
| BOVGSTA | 1151 | AGGACATCAG | CATCATCCGC | ATGAAGACTA | TCCGGGAGCA | CATTCTCGCC | 1300 |
| MUSGLYTHS | 1151 | AGGATATCAG | CATCATCCGC | ATGAAGACCA | TTCGGGAGCA | CATTCTCGCC | 1300 |
| POTCD | 1301 | CACATCCAGC | ACCAGCTTCA | CTTCTCTTTC | TGCATCCAGC | TGCATCAGT | 1350 |
| BOVGSTA | 1301 | CACATCCAGC | ATGAGCTTCA | CTTCTCTTTC | TGCATCCAGC | TGCATCAGT | 1350 |
| MUSGLYTHS | 1301 | CACATCCAGC | ACCAGCTTCA | CTTCTCTTTC | TGCATCCAGC | TGCATCAGT | 1350 |
| POTCD | 1351 | CTTCCAAAC | AACCTTCCGC | TGCAGACTCT | GGCCCACTCC | GTCCCTCAGC | 1400 |
| BOVGSTA | 1351 | CTTCCAAAC | AACCTTCCGC | TGCAGACTCT | GGCCCACTCC | GTCCCTCAGC | 1400 |
| MUSGLYTHS | 1351 | CTTCCAAAC | AACCTTCCGC | TGCAGACTCT | GGCCCACTCC | GTCCCTCAGC | 1400 |
| POTCD | 1401 | TACAGGCTTC | GTCTTACAC | GCAGATCTTC | ACGACTTCAC | CTACGAGAGC | 1450 |
| BOVGSTA | 1401 | TACAGGCTTC | GTCTTACAC | GCAGATCTTC | ATGACTTCAC | CTACGAGAGC | 1450 |
| MUSGLYTHS | 1401 | TCCAGGCTTC | GTCTTACAC | GCAGATCTTC | ACGACTTCAC | CTATGAGAGC | 1450 |
| POTCD | 1451 | GGCAAGCAGT | GGCCAGCTTA | CATTCCCTTT | GGCCAGGCGC | ATTTTATTA | 1500 |
| BOVGSTA | 1451 | GGCAAGCAGT | CTCCAGCTTA | CATTCCCTTC | GGCCAGGCGC | ATTTTATTA | 1500 |
| MUSGLYTHS | 1451 | GGCAAGCTCT | GGCCAGCTTA | CATTCCATTC | GGCCAGGCGC | ATTTTATTA | 1500 |
| POTCD | 1501 | CCAGCCAGCC | ATTTTTCGCG | GAACAGCTAC | TCAGCTTCTA | AACATCAGTC | 1550 |
| BOVGSTA | 1501 | CCAGCCAGCC | ATTTTTCGCG | GAACAGCTAC | TCAGCTTCTT | AACATCAGCC | 1550 |
| MUSGLYTHS | 1501 | CCAGCCGCGC | ATTTTTCGAG | GAACGCTAC | TCAGTCTCTC | AACATCAGCA | 1550 |
| POTCD | 1551 | AGGAGTCTTT | CAAGCGAATC | CTCCAGGACA | ACGAAATCA | CATAGAGGCT | 1600 |
| BOVGSTA | 1551 | AGGATCTCTT | CAAGCGAATC | CTCCAGGACA | ACGAAATCA | CATAGAGGCT | 1600 |
| MUSGLYTHS | 1551 | GGGAGTCTTT | TAAGCGGATC | CTCCAGGACA | ACGAAATCA | CATAGAGGCT | 1600 |
| POTCD | 1601 | CAGTCCCATC | ATCAAGGCA | TCTAAACAC | TATTTCTTTC | TCAGCAAGCC | 1650 |
| BOVGSTA | 1601 | CAATCCCATC | ATCAAGGCA | TCTAAACAC | TATTTCTTTC | TCAGCAAGCC | 1650 |
| MUSGLYTHS | 1601 | CAGTCCCATC | ATCAAGGCA | CTTCAACAA | TACTTCTTTT | TCAGCAAGCC | 1650 |
| POTCD | 1651 | CACAAATC | TTATCCCGAC | AATACTCTTC | GGATTATCAT | ATAGGCTATC | 1700 |
| BOVGSTA | 1651 | TACTAAATC | TTATCCCGCG | AATACTCTTC | GGATTATCAC | ATAGGCTTAC | 1700 |
| MUSGLYTHS | 1651 | CACAAATC | CTATCTCCAG | AGTATCTCTC | GGATTATCAC | ATAGGCTTCC | 1700 |
| POTCD | 1701 | CTCTCCATAT | TAGCATCTTC | AACATAGCTT | GGCAGAAAA | AGACTATAT | 1750 |
| BOVGSTA | 1701 | CTCCGCAAT | TAGCTTCTTC | AACATCTCTT | GGCAGAAAA | AGACTATAT | 1750 |
| MUSGLYTHS | 1701 | CTTCAATAT | TAAAGTCTTC | AACATAGCTT | GGCAGAAAA | AGACTATAT | 1750 |
| POTCD | 1751 | TTGGTTAGAA | ATAACATCTC | ACTTAAATT | GTCCCAAGCAG | TTTTCTCAAT | 1800 |
| BOVGSTA | 1751 | TTGGTTAGAA | ATAATCTCTC | ACTT-----T | GTCCCAAGTAC | ATTCTCTCAAT | 1800 |
| MUSGLYTHS | 1751 | TTGGTTAGAA | ATAATCTCTC | ACTTCAAAAT | GTG----- | --ATCGAAC | 1800 |
| POTCD | 1801 | TTCAACAGT | ATTACTCTCG | CTACTTCTTC | ACAGAACTAC | ---CACTTAA | 1850 |
| BOVGSTA | 1801 | TTCAACAGT | ATTACTCTCG | CTACTTCTTC | ACAGAACTAA | ---CACTTAA | 1850 |
| MUSGLYTHS | 1801 | TTCAAC--T | ATTACTCTCG | CTAACTCTTC | AAAGAACTAC | CAAGACTTCA | 1850 |

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Fig. 4(cont) 4 - 4

| | | | | | | | | |
|-----------|------|------------|------------|-------------|------------|-------------|------------|------|
| PGTCD | 1851 | TTTAACTTT | TAUAAAAA | CTAACAAA | ---- | TACCAA | CACAGTAA-G | 1900 |
| BOVGSTA | 1851 | TTTAACTTT | AAAAAAA | CTAACAAA | ---- | GACCAA | CACAGCAA-A | 1900 |
| MUSGLYTHS | 1851 | TTTCAACTT | TAUAGAA-A | CAATCAAAAC | CAAAACCAAC | TACCAATGCA | | 1900 |
| PGTCD | 1901 | TACATATTAT | TCTTCCTTCC | AACTTTGAGC | CTTCTCAAT | GGCAGCAATCA | | 1950 |
| BOVGSTA | 1901 | TACATATTAT | TCTTCCTTCT | AACTTTGAGC | CTTCTCAAT | GGCAGCAATCA | | 1950 |
| MUSGLYTHS | 1901 | AACACATCAT | TCTTCCT-CA | CACCTTCCAGC | CT-CTAATAT | CTCAGCAATCA | | 1950 |
| PGTCD | 1951 | CTCTCTCG-- | --TAATCAGA | TCTAAATTCG | CAGTCAATTC | ..... |  | 2000 |
| BOVGSTA | 1951 | ACCTCTCG-- | --TAATCAGA | TCTAAATTCG | CAGTCAATTC | TTACCTAATTC | | 2000 |
| MUSGLYTHS | 1951 | CTCTATGCGA | AGTAATCAGG | TATAAATTCG | CAATCAATTC | TTATATATTC | | 2000 |
| PGTCD | 2001 | ..... | ..... | ..... | ..... | ..... |  | 2050 |
| BOVGSTA | 2001 | TTCTCTCTCG | GGCGCGCGAA | TGCAATACAGC | ATCAATTCGA | CG..... | | 2050 |
| MUSGLYTHS | 2001 | TTCTCTCTCG | CAAACTTCA | TTCTCAAT | CAAAATTAAT | TTCAAGAGC | | 2050 |
| PGTCD | 2051 | ..... | ..... | ..... | ..... | ..... |  | 2100 |
| BOVGSTA | 2051 | ..... | ..... | ..... | ..... | ..... |  | 2100 |
| MUSGLYTHS | 2051 | AAAGCAGCAT | GGCGAACT | TCTTCCTAGT | CTCTCAATCA | ATTACCACT | | 2100 |
| PGTCD | 2101 | ..... | ..... | ..... | ..... | ..... |  | 2150 |
| BOVGSTA | 2101 | ..... | ..... | ..... | ..... | ..... |  | 2150 |
| MUSGLYTHS | 2101 | GGCAGCTCG | TCAGAGAGC | ATTAGCGAGC | AGCTCTCGCT | CTCTCACT | | 2150 |
| PGTCD | 2151 | ..... | ..... | ..... | ..... | ..... |  | 2200 |
| BOVGSTA | 2151 | ..... | ..... | ..... | ..... | ..... |  | 2200 |
| MUSGLYTHS | 2151 | TCAGCGCTC | CTCTCTCT | GGTCAATAT | CTCTCTCTC | ATCGAGATTC | | 2200 |
| PGTCD | 2201 | ..... | ..... | ..... | ..... | ..... |  | 2250 |
| BOVGSTA | 2201 | ..... | ..... | ..... | ..... | ..... |  | 2250 |
| MUSGLYTHS | 2201 | TAAGCGAGC | CAGAGCTT | TTCAAGCGAGC | AGAGCTTAA | TAAGCAATTC | | 2250 |
| PGTCD | 2251 | ..... | ..... | ..... | ..... | ..... |  | 2300 |
| BOVGSTA | 2251 | ..... | ..... | ..... | ..... | ..... |  | 2300 |
| MUSGLYTHS | 2251 | AACTCTAGCA | TCAGCTCTA | AAAGCTCAT | GGTCAAGAG | GGTCTCGACT | | 2300 |
| PGTCD | 2301 | ..... | ..... | ..... | ..... | ..... |  | 2350 |
| BOVGSTA | 2301 | ..... | ..... | ..... | ..... | ..... |  | 2350 |
| MUSGLYTHS | 2301 | CGAGCGCGCA | CTAGCTAT | CTTCTCTCC | TGCGCATAA | CGAGCGAGC | | 2350 |
| PGTCD | 2351 | ..... | ..... | ..... | ..... | ..... |  | 2400 |
| BOVGSTA | 2351 | ..... | ..... | ..... | ..... | ..... |  | 2400 |
| MUSGLYTHS | 2351 | AGTCTCAATA | CTTACTTCC | TGCGCATCT | TCAGCTCA | CGAAATCA | | 2400 |
| PGTCD | 2401 | ..... | ..... | ..... | ..... | ..... |  | 2450 |
| BOVGSTA | 2401 | ..... | ..... | ..... | ..... | ..... |  | 2450 |
| MUSGLYTHS | 2401 | AGCGTCAAA | CTTACAGCA | CATAGCACT | GGGTCTCTC | ATTCAATCA | | 2450 |
| PGTCD | 2451 | ..... | ..... | ..... | ..... | ..... |  | 2500 |
| BOVGSTA | 2451 | ..... | ..... | ..... | ..... | ..... |  | 2500 |
| MUSGLYTHS | 2451 | CTTACAAACA | CACAGCTT | TCTTCAAGAT | CACTAACAGC | AGCAATTCGA | | 2500 |

Fig. 4(cont.) 4-5

| | | | | | | | |
|-----------|------|------------|------------|------------|------------|------------|------|
| PGTCD | 2501 | ..... | ..... | ..... | ..... | 2550 | |
| BOVGSTA | 2501 | ..... | ..... | ..... | ..... | 2550 | |
| MUSGLYTHS | 2501 | TCGAAAGTGT | GTTCAATTTC | TTTTCCGCAA | ATTGTATCTA | TGCTGTACG | 2550 |
| PGTCD | 2551 | ..... | ..... | ..... | ..... | 2600 | |
| BOVGSTA | 2551 | ..... | ..... | ..... | ..... | 2600 | |
| MUSGLYTHS | 2551 | TTTGTGTGTT | CAGCGCTGTC | GAGAGCGTCT | CAGTGTATCA | GCGAAGTACA | 2600 |
| PGTCD | 2601 | ..... | ..... | ..... | ..... | 2650 | |
| BOVGSTA | 2601 | ..... | ..... | ..... | ..... | 2650 | |
| MUSGLYTHS | 2601 | GTACCTCAGC | CGACTCAGCA | CGAGCAGCGT | ATTATATCAG | AACACAACTT | 2650 |
| PGTCD | 2651 | ..... | ..... | ..... | ..... | 2700 | |
| BOVGSTA | 2651 | ..... | ..... | ..... | ..... | 2700 | |
| MUSGLYTHS | 2651 | CTCATCATCA | CGTCTTACCT | ACAGCGCTGT | CTGACCGTCC | CAGTTCTCTA | 2700 |
| PGTCD | 2701 | ..... | ..... | ..... | ..... | 2750 | |
| BOVGSTA | 2701 | ..... | ..... | ..... | ..... | 2750 | |
| MUSGLYTHS | 2701 | CGCCATCTGC | TTCGAGCTGC | CGCCGCTGTA | TCCAGCAGCT | CAGTCAGACG | 2750 |
| PGTCD | 2751 | ..... | ..... | ..... | ..... | 2800 | |
| BOVGSTA | 2751 | ..... | ..... | ..... | ..... | 2800 | |
| MUSGLYTHS | 2751 | AAAGCGCGCT | GTACATATCA | CTCATTTCCC | CTGCTCTACT | ACTATCCAGG | 2800 |
| PGTCD | 2801 | ..... | ..... | ..... | ..... | 2850 | |
| BOVGSTA | 2801 | ..... | ..... | ..... | ..... | 2850 | |
| MUSGLYTHS | 2801 | TGTCACAGCC | AGCCAGCCAG | ATGTACTGCA | CAACATAGCA | ACCCACTTCA | 2850 |
| PGTCD | 2851 | ..... | ..... | ..... | ..... | 2900 | |
| BOVGSTA | 2851 | ..... | ..... | ..... | ..... | 2900 | |
| MUSGLYTHS | 2851 | TGGCATAGCG | AGCCGCACTC | ACTACAGCCG | AGCTGCTCAA | GCTTCTCTTC | 2900 |
| PGTCD | 2901 | ..... | ..... | ..... | ..... | 2950 | |
| BOVGSTA | 2901 | ..... | ..... | ..... | ..... | 2950 | |
| MUSGLYTHS | 2901 | CGCGCTCTCA | CAACCTGCAG | CAGCGCGTCT | ATTAGTGGTT | CTCACCTAT | 2950 |
| PGTCD | 2951 | ..... | ..... | ..... | ..... | 3000 | |
| BOVGSTA | 2951 | ..... | ..... | ..... | ..... | 3000 | |
| MUSGLYTHS | 2951 | CGCTCCGAC | CGCTTTGCGA | AGTGTAAAT | GAGCGTTTCA | CAGCTGTCCG | 3000 |
| PGTCD | 3001 | ..... | ..... | ..... | ..... | 3050 | |
| BOVGSTA | 3001 | ..... | ..... | ..... | ..... | 3050 | |
| MUSGLYTHS | 3001 | CTAACAGCGT | TAAAAACAT | AGATATTTCG | ACTCTACTTC | GTAACTATAG | 3050 |
| PGTCD | 3051 | ..... | ..... | ..... | ..... | 3100 | |
| BOVGSTA | 3051 | ..... | ..... | ..... | ..... | 3100 | |
| MUSGLYTHS | 3051 | CACAAATACA | GTATCGAAAT | AGCAAGCGAA | ATAAATCTCG | CGTTCTGTTC | 3100 |

Fig 5

PDH Line-up (aa):

| | | | | | | | |
|--------------|-----|------------|------------|------------|------------|------------|-----|
| | | Ex4 ↓ Ex5 | Ex5 ↓ Ex6 | | | | |
| PQT(Frame 1) | 1 | HNKCKRVLL | MLVSTAVV | PHYINSPDS | SLPHYQSN | PEVG-SSAQR | 50 |
| BGT(Frame 1) | 1 | HNKCKRVLL | MLVSTAVV | PHYINSPDS | SLPHYQSN | PEVGSSSTQK | 50 |
| HGT(Frame 1) | 1 | HNKCKRVLL | MLVSTAVV | PHYINSPDS | SLPHYQSN | PEVGSHRWCK | 50 |
| | | Ex6 ↓ Ex7 | Ex7 ↓ Ex8 | | | | |
| PQT(Frame 1) | 51 | GNWFPWFNN | CTHSTHEDD | ATGNEXQK | EDNAGOLPV | DWNPSEKPS | 100 |
| BGT(Frame 1) | 51 | GNWLPWFNN | G---YHEEDG | DTNEEKQAN | ED-SSKLLS | DWNPSTKPS | 100 |
| HGT(Frame 1) | 51 | GNWFPWFNN | CTHSTHEDD | EDNAGOLPV | DWNPSEKPS | 100 | |
| | | Ex8 ↓ Ex9 | | | | | |
| PQT(Frame 1) | 101 | AVTETRWKAP | VWEGTQIRA | VLONYAKCK | ITVGLTVFV | GRYDHYLED | 150 |
| BGT(Frame 1) | 101 | AVTETRWKAP | VWEGTQIRA | VLONYAKCK | ITVGLTVFV | GRYDHYLED | 150 |
| HGT(Frame 1) | 101 | AVTETRWKAP | VWEGTQIRA | VLONYAKCK | ITVGLTVFV | GRYDHYLED | 150 |
| | | | | | | | |
| PQT(Frame 1) | 151 | FUSANTYFM | VCHRYIFYM | VDDISRMPLI | ELQPLASFKV | FEIKSEKRWQ | 200 |
| BGT(Frame 1) | 151 | FUSANTYFM | VCHRYIFYM | VDDISRMPLI | ELQPLASFKV | FEIKSEKRWQ | 200 |
| HGT(Frame 1) | 151 | FUSANTYFM | VCHRYIFYM | VDDISRMPLI | ELQPLASFKV | FEIKSEKRWQ | 200 |
| | | | | | | | |
| PQT(Frame 1) | 201 | DISMHRMTI | GEHILAHQH | EVDFLFCHDV | DQVFQDNFGV | ETLCQSVACL | 250 |
| BGT(Frame 1) | 201 | DISMHRMTI | GEHILAHQH | EVDFLFCHDV | DQVFQDNFGV | ETLCQSVACL | 250 |
| HGT(Frame 1) | 201 | DISMHRMTI | GEHILAHQH | EVDFLFCHDV | DQVFQDNFGV | ETLCQSVACL | 250 |
| | | | | | | | |
| PQT(Frame 1) | 251 | QAHWYKAPD | EFTYERKES | AAIYFPGGD | FYTHAAIFGD | TPTQVLNITQ | 300 |
| BGT(Frame 1) | 251 | QAHWYKAPD | EFTYERKES | AAIYFPGGD | FYTHAAIFGD | TPTQVLNITQ | 300 |
| HGT(Frame 1) | 251 | QAHWYKAPD | EFTYERKES | AAIYFPGGD | FYTHAAIFGD | TPTQVLNITQ | 300 |
| | | | | | | | |
| PQT(Frame 1) | 301 | ECFKGILQOX | ENDIZAGHD | ESHNLKYFL | NKPTKILSP | YCHDYHIGMS | 350 |
| BGT(Frame 1) | 301 | ECFKGILQOX | ENDIZAGHD | ESHNLKYFL | NKPTKILSP | YCHDYHIGMS | 350 |
| HGT(Frame 1) | 301 | ECFKGILQOX | ENDIZAGHD | ESHNLKYFL | NKPTKILSP | YCHDYHIGMS | 350 |
| | | | | | | | |
| PQT(Frame 1) | 351 | VDIREVKIAN | QKKEYNLVAV | NI* | | | 400 |
| BGT(Frame 1) | 351 | VDIREVKIAN | QKKEYNLVAV | NV* | | | 400 |
| HGT(Frame 1) | 351 | VDIREVKIAN | QKKEYNLVAV | NV* | | | 400 |

